normalized to the mean activity of the entire left ventricle, and is displayed as follows:

	Reperfusion Blood Flow		IPPA Distribution/Blood Flow	
	At 1 hour	At 1.7 hour	I-123 Rentention	I-125 Uptake
Normal	0.99 ± 0.10	1.11 ± 0.16	1.01 ± 0.08	1.01 ± 0.26
RA-Viable	1.17 ± 0.22	0.86 ± 0.17*	0.94 ± 0.20	0.97 ± 0.15
RA-Infact	1.14 ± 0.38	0.73 ± 0.24*	0.94 ± 0.30	0.94 ± 0.16

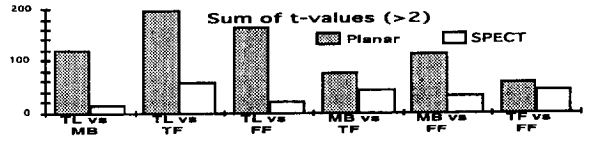
*$p < 0.05$

Despite a significant decrease in blood flow within the RA at the end of the experiment, the retained I-123 IPPA reflected the blood flow at the time of its injection. We conclude that following acute coronary occlusion and reperfusion, the initial distribution of IPPA is related to flow and does not reflect the severity of myocardial injury. In addition, the cardiac retention of IPPA cannot be used to identify acutely infarcted or stunned myocardium. Therefore, during the immediate peri-infarction period, IPPA uptake and kinetics cannot be used to determine the viability of reperfused myocardium.

913-116 Quantitative Comparison of Planar and SPECT Normal Databases of Thallium-201, Sestamibi, Tetrofosmin and Furifosmin

Hitoshi Naruse, Edouard Daher, Albert Sinusas, Diwakar Jain, Donna Natale, Frans Wackers. *Yale University, New Haven, CT*

For quantification of planar and SPECT myocardial perfusion imaging lower limits of normal (LLN) are generated for each specific radiotracer from normal subjects. It is unclear how LLN for Tl-201 (Tl), Tc-99m-Sestamibi (MB), Tc-99m-Tetrofosmin (TF) and Tc-99m-Furifosmin (FF) compare quantitatively. Accordingly we performed quantitative comparison of exercise planar (P) and SPECT (SP) in normal subjects (<3% likelihood CAD) with Tl (P:26, SP:26); MB (P:20, SP:28); TF (P:27, SP:42) and FF (P:12, SP:13). LLN (mean – 2sd) were generated using 36-points circumferential count profiles of P views and SP short axis slices. Comparisons were made by unpaired t-tests of each matched data point of 2 radiotracers. Summed t-values > 2 ($p < 0.05$) represent a measure for point-to-point significant difference between LLN curves. The higher the value the greater the difference. The figure shows t-values for comparison of various tracers for P and SP:



LLN of various tracers are significantly different from each other and greater for P than for SP. On P imaging differences between Tl and Tc-99m agents were primarily at base and anterior wall, whereas on SP no pattern existed. Differences in P imaging may be due to marked effect of interpolative background subtraction, whereas back projection and filtering produces smaller random SP differences. Thus, LLN of various agents are markedly different for P but less for SP. Radiotracer-specific normal databases should be used for quantification of P and SP myocardial perfusion imaging.

913-117 Tc99m-Furifosmin Organ Clearance and Heart/Organ Ratio After Exercise and at Rest: Implication for Timing of Imaging

Edouard Daher, Albert J. Sinusas, Frans J. Th. Wackers, Donna Natale, Wendy Bruni, Tc-99m Furifosmin Investigators. *Yale Univ., New Haven, CT*

Tc99m-furifosmin (FF) has shown promising results in Phase III studies. We performed serial exercise (EX) and rest (R) FF planar imaging in 13 normal volunteers, using two same-day Tc-FF injections for defining organ biokinetics. For EX imaging 10 mCi of FF was injected IV at peak EX and for R imaging 30 mCi of FF 3 hours later. Serial 5 min planar images were obtained in the anterior view at 5, 10, 15 and 60 min. following both injections. Regions of interests (ROI) were drawn over heart (H), liver (Li), lung (Lu), and intestines (I). Decay-corrected counts were plotted against time after injection.

After Ex, clearance from various organs is similar. At R, clearance is similar for H, Lu and I, but faster for Li. Quality of images is determined by H/organ ratio (small ROI immediately adjacent to H). H/organ ratios over time after injection are shown:

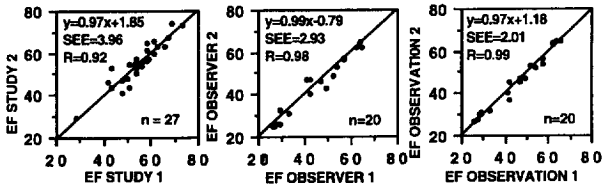
Over time only minimal improvement of ratios occurred (i.e. maximal change was at R: H/Li from 1.0 ± 0.1 to 1.3 ± 0.1).

Conclusion: Since no significant change in H/organ ratio occurs, imaging with FF is not very time-dependent. Imaging can be started early after both exercise and rest injection. This observation has clinical relevance regarding the design of one day imaging protocol.

913-118 Repeatability of Treadmill Exercise Ejection Fraction and Wall Motion Using Tc-99m Sestamibi First Pass Radionuclide Ventriculography

Boaz Benari, Hosen Kiat, Jacob Erel, Mark Hyun, Fan Ping Wang, Cyndi Williams, Guido Germano, Kenneth Van Train, John D. Friedman, Daniel S. Berman. *Cedars-Sinai Medical Center, L.A., CA*

Tc-99m sestamibi peak treadmill exercise first pass (TmExFP) radionuclide ventriculography has been recently validated (Friedman et al J Nucl Cardiol 1994;1:382-8). However, the repeatability of TmExFP assessment has not been previously reported. Therefore, we prospectively repeated TmExFP within 40 ± 51 days in a group of 27 clinically stable patients. The level of exercise achieved was similar (double product: 26357 ± 3877 vs. 26621 ± 4287, p = ns) and there was no interval change in clinical or treatment status. Also, to evaluate inter- and intra-observer agreement, we blindly analyzed a separate group of 20 patients with a broad range of LVEF. Results of repeatability, inter- and intra-observer agreement on LVEF are as follows:



Reproducibility of regional wall motion was visually interpreted by an expert observer in a blinded fashion using a 3 point score (3, 2, 1 = normal, hypo- and a/dyskinesis, respectively) to 5 left ventricular wall segments (S1–S5 = basal anterior, distal anterior, apical, distal inferior and basal inferior). Results of segmental score agreement between the first and second study were: Overall: 116/135 (86%, kappa = 0.74), S1: 23/27 (85%, kappa = 0.72), S2: 23/27 (85%, kappa = 0.84), S3: 25/27 (93%, kappa = 0.85), S4: 25/27 (93%, kappa = 0.80), S5: 18/27 (67%, kappa = 0.64).

Conclusion: TmExFP is a highly repeatable test with high degree of reproducibility for visual regional wall motion and quantitative LVEF and with high inter- and intra-observer agreement.

913-119 Coronary Angiographic and Doppler Flow Correlates of Technetium-99m Sestamibi Myocardial Perfusion Abnormalities Following Successful Coronary Angioplasty

D. Douglas Miller, José Esparza, Carol Mechem, Sheila Byers, Richard Bach, Mark D. Wittry, Morton J. Kern, Thomas J. Donohue. *Saint Louis University Health Sciences Center, St. Louis, Missouri*

Thallium-201 myocardial perfusion defects may persist in studies performed early after angiographically successful percutaneous transluminal coronary angioplasty (PTCA). The causes for and frequency of post-PTCA technetium-99m sestamibi (MIBI) perfusion abnormalities have not been elucidated in man. We examined the post-PTCA quantitative coronary angiographic and distal/proximal (d/p) intracoronary Doppler average peak flow velocity (APV) correlates of MIBI myocardial tomography in tle PTCA perfusion beds of 34 consecutive pts (M = 19, F = 15; age = 57 ± 14 yrs). The average pre-PTCA % diameter stenosis [%DS in LAD = 15, RCA = 10, LCX = 6, graft = 3] was 78 ± 15%. Same-day rest-stress MIBI tomograms were blindly scored for the presence and # of reversible myocardial defects in post-PTCA perfusion beds using a 20 segment model. Results of pts with normal (n = 24) and

MONDAY PM